



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,726	09/08/2003	Ken Utagawa	117044	4793
25944	7590	12/10/2008	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 320850 ALEXANDRIA, VA 22320-4850				NGUYEN, LUONG TRUNG
ART UNIT		PAPER NUMBER		
2622				
MAIL DATE		DELIVERY MODE		
12/10/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/656,726	UTAGAWA, KEN	
	Examiner	Art Unit	
	LUONG T. NGUYEN	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 19 August 2008.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-10, 12-15, 17-29 and 31 is/are pending in the application.
 4a) Of the above claim(s) 2-10 and 29 is/are withdrawn from consideration.
 5) Claim(s) 20-28 and 31 is/are allowed.
 6) Claim(s) 1, 12-15 and 17-19 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>11/06/08</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application
	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Species VII, Figure 29, in the reply filed on 02/07/2007 is acknowledged.
2. Claims 2-10, 29 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 02/07/2007.

Response to Amendment

3. Applicant's arguments filed 8/19/2008 have been fully considered but they are not persuasive.

In re page 10, Applicant argues that Tanaka does not disclose the claimed low-resolution transport mode that adds up the photo signals of the photosensors within each of the pixel blocks, wherein the pixel blocks are constituted by two or more photosensors adjacently disposed in an array direction and receiving light filtered to have the same color.

In response, regarding claim 1, the Applicant amended claim 1 with limitation "each of the pixel blocks is constituted of N ($N \geq 2$) photosensors adjacently disposed in an array direction of the matrix, ..., and the readout section selectively has a plurality of transfer modes including a low-resolution transport mode that adds up the photo signals of the photosensors within each of the pixel blocks." The Examiner considers that claim 1 as amended still does not

distinguish from Tanaka in view of Yamada and Morris et al. references. Tanaka discloses each of the pixel blocks is constituted of N ($N \geq 2$) photosensors adjacently disposed in an array direction of the matrix (adding signal charges between the 2 pixels adjacent in row direction; column 9, lines 5-15, line 49-58; column 10, lines 34-46); Tanaka, further, discloses that the solid-state imaging apparatus having CCD imaging device 10 can be operated in the two operation modes of frame read mode and the addition read mode, which added signal charges for 2 or more pixels, column 9, line 60 – column 10, lines 46) which corresponds to limitation “the readout section selectively has a plurality of transfer modes including a low-resolution transport mode that adds up the photo signals of the photosensors within each of the pixel blocks.”

In re page 10, Applicant argues that Morris et al. does not teach making all of the pixels in one of the groups (groups 113a-133d) a same color.

In response the Examiner considers that Morris et al. does disclose this feature. Morris et al. discloses that the groups 113 may be associated with different pixel colors; one group 113 may be associated with a red pixel color and one group 113 may be associated with a green pixel color, i.e., same color, column 3, lines 37-40).

In re pages 10-11, Applicant argues that it would not have been obvious to provide the combinations of features recited in independent claims 1 and 15.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the

teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In re page 11, Applicant argues that Morris et al., as well as the other applied references, does not disclose "a first color arranged on every pixel block in one of the even number array and the odd number array of the matrix" and "a second color and a third color arranged alternately on the pixel blocks in the other of the even number array and the odd number array".

In response, the Examiner considers that Morris et al. does disclose this feature. Morris et al. teaches an imager 140, which is spatially divided into multiple groups 113 (groups 113a, 113b, 113c, 113d), one group 113 may be associated with red color and one group 113 may be associated with a green pixel color (figure 5, column 3, lines 5-50).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 12, 14, 15, 17, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (US 6,982,751) in view of Yamada (US 6,914,633) further in view of Morris et al. (US 6,665,010).

Regarding claim 1, Tanaka discloses an imaging device comprising:

a plurality of photosensors (sensor blocks 11, figures 1, 5; column 6, lines 15-23) arranged in matrix on a light-receiving surface of the imaging device, for generating photo signals in accordance with an amount of received light;
a readout section (vertical section 13, figures 1, 5; column 6, lines 15-23; column 9, lines 5-15) for adding up the generated photo signals in each of pixel blocks for external output, the pixel blocks being set on the light-receiving surface, and wherein each of the pixel blocks is constituted of N ($N \geq 2$) photosensors adjacently disposed in an array direction of the matrix (adding signal charges between the 2 pixels adjacent in row direction; column 9, lines 5-15, lines 49-58; column 10, lines 34-46), the readout section selectively has a plurality of transfer modes including a low-resolution transport mode that adds up the photo signals of the photosensors within each of the pixel blocks (Tanaka discloses that the solid-state imaging apparatus having CCD imaging device 10 can be operated in the two operation modes of frame read mode and the addition read mode, which added signal charges for 2 or more pixels, column 9, line 60 – column 10, lines 46).

Tanaka fails to specifically disclose the pixel blocks in an even number array and the pixel blocks in an odd number array are shifted in phase by half a phase in the array direction. However, Yamada teaches a solid state image pickup device, in which an odd column is disposed being shifted by about a half pitch from an even column (figure 1, column 5, lines 10-

19). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Tanaka by the teaching of Yamada in order to be capable of realizing high pixel integration and improving a transfer performance of each transfer path without degrading the performance of photoelectric conversion elements (column 2, lines 50-54).

Tanaka and Yamada fail to specifically disclose a color filter array disposed on the light-receiving surface such that the photosensors in each pixel block have the same color. However, Morris et al. teaches an imager 140, which is spatially divided into multiple (four, for example) groups 113 (groups 113a, 113b, 113c, 113d), one group 113 may be associated with red color and one group 113 may be associated with a green pixel color (figure 5, column 3, lines 5-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Tanaka and Yamada by the teaching of Morris et al. in order to independently control integration times for different groups of pixels sensing unit that optimizes the dynamic range of the captured image (column 3, lines 25-30).

Regarding claims 12, 17, Morris et al. discloses wherein said color filter array has:
a first color arranged on every pixel block in one of the even number array and the odd number array of the matrix; and a second color and a third color arranged alternately on the pixel blocks in the other of the even number array and the odd number array (Morris et al. teaches an imager 140, which is spatially divided into multiple groups 113 (groups 113a, 113b, 113c, 113d), one group 113 may be associated with red color and one group 113 may be associated with a green pixel color (figure 5, column 3, lines 5-50)).

Regarding claims 14, 19, Tanaka discloses wherein said readout section selectively has a high-resolution transport mode in which photo signals are transported in each of said photosensors (frame read mode, column 9, lines 5-13).

Regarding claim 15, Tanaka discloses an imaging device comprising:
a plurality of photosensors (sensor blocks 11, figures 1, 5; column 6, lines 15-23)
arranged in matrix on a light-receiving surface of the imaging device, for generating photo signals in accordance with an amount of received light;

a readout section (vertical section 13, figures 1, 5; column 6, lines 15-23; column 9, lines 5-15) for adding up the generated photo signals in each of pixel blocks set on the light-receiving surface for external output, and wherein each of the pixel blocks is constituted of N ($N \geq 2$) photosensors adjacently disposed in an array direction of the matrix (adding signal charges between the 2 pixels adjacent in row direction; column 9, lines 5-15, lines 49-58; column 10, lines 34-46), the readout section selectively has a plurality of transfer modes including a low-resolution transport mode that adds up the photo signals of the photosensors within each of the pixel blocks (Tanaka discloses that the solid-state imaging apparatus having CCD imaging device 10 can be operated in the two operation modes of frame read mode and the addition read mode, which added signal charges for 2 or more pixels, column 9, line 60 – column 10, lines 46).

Tanaka fails to specifically disclose the plurality of photosensors arranged in matrix diagonally to horizontal and vertical directions on a light-receiving surface. However, Yamada teaches a solid state image pickup device, in which an odd column is disposed being shifted by about a half pitch from an even column; the (figure 1, column 5, lines 10-19). Therefore, it

would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Tanaka by the teaching of Yamada in order to be capable of realizing high pixel integration and improving a transfer performance of each transfer path without degrading the performance of photoelectric conversion elements (column 2, lines 50-54).

Tanaka and Yamada fail to specifically disclose a color filter array disposed on the light-receiving surface such that the photosensors in each pixel block have the same color. However, Morris et al. teaches an imager 140, which is spatially divided into multiple (four, for example) groups 113 (groups 113a, 113b, 113c, 113d), one group 113 may be associated with red color and one group 113 may be associated with a green pixel color (figure 5, column 3, lines 5-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Tanaka and Yamada by the teaching of Morris et al. in order to independently control integration times for different groups of pixels sensing unit that optimizes the dynamic range of the captured image (column 3, lines 25-30).

6. Claims 13, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (US 6,982,751) in view of Yamada (US 6,914,633) and Morris et al. (US 6,665,010) further in view of Gallagher et al. (US 6,765,611).

Regarding claims 13 and 18, Tanaka, Yamada and Morris et al. fail to specifically disclose an optical low pass filter for blurring an optical image projected on the light-receiving surface in a direction substantially perpendicular to the array direction of the matrix. However, Gallagher et al. teaches an optical low pass filter 6, which is placed between lens and image sensing device 10, performs a slight blurring of the imaged light (figure 1, column 4, lines 19-

25). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Tanaka, Yamada and Morris et al. by the teaching of Gallagher et al. in order to reduce the occurrence of aliasing (column 4, lines 20-25).

Allowable Subject Matter

7. Claims 20-28, 31 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:
Regarding claims 20-28, 31, see Examiner's statement of reasons for the indication of allowable subject matter as indicated in Paper mailed on 05/03/2007.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUONG T. NGUYEN whose telephone number is (571) 272-7315. The examiner can normally be reached on 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DAVID L. OMETZ can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David L. Ometz/
Supervisory Patent Examiner, Art Unit
2622

/L. T. N./
12/04/08